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THE MAN AT THE BOTTOM PAYS THE BILL.

I am taking for granted that every one of you has read carefully the Supreme Court decision anent the trusts. After years of study, with opportunities unrivaled for the investigation of the complexities of the trust-problem, the greatest judiciary in the country has given forth its latest pronouncement on the matter.

Boiled down, the decision is in commandment-form: **Thou shalt not do anything unreasonable.**

What in the name of mental illumination does "unreasonable" mean?

It is "unreasonable" to suppose that when the greatest interpreters of the law of the land fail to supply a definition, the average business-man can order the expansion of his business-interests to fit within the indefinite and threatening restriction of that definitionless word "unreasonable".

Our whole commercial scheme is rotten to the core. We are everlastingly robbing Peter to pay Paul, Paul never receiving the full amount of his bill and Peter never getting paid back. Our whole system of price-making and price-taking utterly disregards the fundamental fact that—

The Man at the Bottom Pays the Bill.

Ignorance, indifference, or studied disregard of this important truth are basically responsible for the commercial fluctuations and reactions of the present time.

What does it profit a man if he earn $10 more a week? Eventually he loses money by the increase.

Study that out for a moment. Let us suppose that employers in any given line of industrial effort, employing 1,000,000 men, are induced by labor-union demands to pay each man an additional $10 weekly. From the employers' respective banks, there are drawn, therefore, $10,000,000 weekly, or $520,000,000 in the course of a year.

What happens? Let us suppose further that the industry in question is the textile industry, whose products are in constant and increasing demand. The textile employers immediately revise their price-lists, the new prices including not only the $520,000,000 but the interest thereon and—

The Man at the Bottom Pays the Bill.

The success of the textile workers in obtaining the increased wage stimulated other workers in other lines to better their conditions, being additionally spurred by the higher prices they have to pay for clothing, as a result of the good-fortune of their brother-workmen.

When the increases in each line are secured, mostly as a result of protracted strikes, threats to life and prosperity and acts of lawlessness, the employers again pay the increase, prices are again readjusted and—

The Man at the Bottom Pays the Bill.

He pays not only the bill for his own increase of wage, but he pays also the bill for disorganization of trade, commercial failures, the funerals of the slugged, the prosecutions of the sluggers, and the support of the institutions that manhandle, in the name of "charity", the laboring destitutes, their wives and their children.

The whole system of wage-extraction is a farce. I use the word "extraction" advisedly, for every change in price is only effected by a process analogical to and as painful as the pulling of teeth.

Worst of all, the brainless, soulless method of commercial mismanagement has brought about a class-prejudice between labor and capital that is fatal to all efforts for satisfactory adjustment.

The sons of the poor are innoculated with distrust of capital by the milk they draw from their mothers' breasts.

The sons of the rich are taught to be glad that they have not been cast in a common mold, even though they are but a single remove from a sausage factory or a pickling plant.

So great have been the resources of our country that we have learned only to produce. **We are the greatest producers in the world. We have yet to learn how to conserve.** Hitherto, when conditions became unsatisfactory, we packed up our traps and went West, and now there is no West. European immigration, up to now the secret of our success, will in future years present problems of menace. We must establish our commercial dealings on a sound basis.

Trust-legislation is not the remedy. If we tell the trusts by law that they must charge less for their products, then wages will decrease in proportion.

If we dissolve the big trusts into a number of subsidiary companies, the expenses of management and overhead charges will be greater and—

The Man at the Bottom Pays the Bill.

Kindly remember that **You** are **The Man at the Bottom** to those whose earning capacity is greater than yours.

If you consider yourself the Man at the Top, you are worse off yet, for there are thousands of hands belonging to the men at the bottom eager to pull you down from the top rung of the ladder of your success.

The remedy lies in the securing of a National Board of Adjustment to determine minimum and maximum prices, regulate wages, and distribute adequate rewards for the service of the employee, the employer, the seller and the buyer. This board would see to it that the seller at a losing price and the seller at a piratical price should be held equally criminal. The millions of dollars that are now wasted in adjustment by coercion will then be devoted to beneficial conservative uses. **The conflict between those who endeavor to pay as low a price for as much labor as possible, and those who endeavor to give as little service as possible for the largest price, is uneconomical. It must cease if we desire national peace and stability.** You plumbers and steam-fitters, whether employer or employee, are in the midst of this conflict and suffer from it.

We urge your consideration and support of every movement which will help to bring about the desired change in our commercial methods. Let your men read this editorial. We believe it has a message for them.

June 22, 1911.—The annual mid-summer meeting of the Eastern Supply Association, in Atlantic City, N. J. Headquarters will be established at the Chalfonte Hotel. The officers of the association are: President, P. M. Beecher, Syracuse, N. Y.; first vice-president, J. A. Murray, New York City; second vice-president, F. H. Locke, Boston; treasurer, Martin Behrer, New York City; secretary, Frank S. Hanley, 261 Broadway, New York City.

June 28, 1911.—Midsummer meeting of the Central Supply Association, at Detroit, Mich. The officers of the association are: President, Geo. H. Gorton, Kansas City, Mo.; first vice-president, Wm. Ivy, St. Louis, Mo.; second vice-president, P. J. Frey, Minneapolis, Minn.; treasurer, Edw. F. Niedecken, Milwaukee, Wis.; secretary, Paul Blatchford, 1524 Tribune Bldg., Chicago.

July 6, 7 and 8, 1911.—Annual summer meeting of the American Society of Heating and Ventilating Engineers, in Chicago. The officers of the society are: President, R. P. Bolton, New York City; first vice-president, Prof. John R. Allen, Ann Arbor, Mich.; second vice-president, A. B. Franklin, Boston; secretary, W. W. Macon, 29 West 39th St., New York City.

THE NINTH ANNUAL CONVENTION OF THE OREGON MASTER PLUMBERS

The Oregon State Association of Master Plumbers held its ninth annual convention on June 3 in Portland, meeting in the rooms of the Portland Association. The election of officers resulted as follows: President, James Beggs, Portland; vice-president, W. N. Smith, Astoria; treasurer, Wm. Muirhead, Portland; executive board, Joe Kuchhoff, The Dalles; Percy Long, Eugene; J. Hansen, Astoria; H. Donnenberg, Portland; C. J. Doughty, Portland.

THE 27TH ANNUAL CONVENTION OF THE ASSOCIATED MASTER PLUMBERS OF TEXAS, HELD IN GALVESTON, JUNE 10, 1911.

The 27th annual convention of the Associated Master Plumbers of Texas, held June 10, was the best yet.

There was no address of welcome, the transaction of routine business beginning at once. Committees were appointed as follows.

The Credential Committee was composed of C. H. Diercks, Galveston; J. H. Wooley, Corsicana; J. A. Barry, Fort Worth.

The members of the Auditing Committee were: Geo. Robischung, Houston; R. J. Thomas, San Antonio; E. H. Hutton, Dallas.

The Mileage and Per Diem Committee comprised: S. C. Carroll, Dallas; M. C. Barber, Houston; A. H. Shafer, San Antonio.

The Sergeant-at-arms was Wm. Wheeler, of Victoria.

The election of officers resulted as follows: President, P. J. Sheehan, Dallas; vice-president, G. E. Robinson, Galveston; treasurer, N. S. Hill, Waco. President Sheehan appointed W. E. Thatcher, Fort Worth, as secretary. The delegates to the national convention are: G. E. Robinson, R. C. Malitz, C. H. Diercks, all of Galveston; J. P. Keithley, Houston; J. F. Madden, Sherman; W. G. Schuwirth, L. Gutzeit, C. O'Neill, all of San Antonio; W. E. Thatcher, R. E. McDonald, Fred Robbins, all of Fort Worth; P. J. Sheehan and S. C. Carroll, of Dallas; T. J. Cahill, Corpus Christi; President Sheehan and Joseph Netzer, who is a member of the national board of directors, are delegates ex-officio.

State sanitary inspection was advocated by Ed. Braden, San Antonio, and the resolution presented was endorsed by the convention. National President A. Selden Walker greeted the delegates.

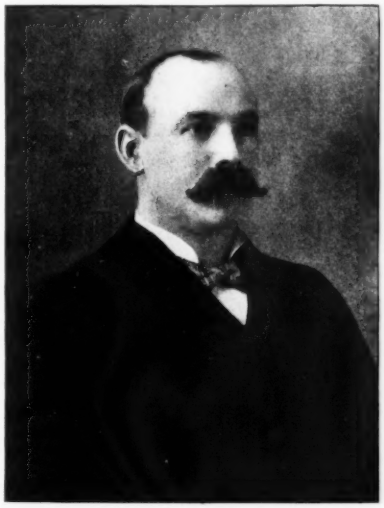
THE FOURTEENTH ANNUAL CONVENTION OF THE COLORADO MASTER PLUMBERS' ASSOCIATION.

On Monday and Tuesday, May 29 and 30, the master plumbers of Colorado, New Mexico, Utah, Idaho and Wyoming, met in Denver in their 14th annual convention. The sessions were held at the Chamber of Commerce hall, and were attended by over 300 delegates. To Utah belongs the honor of the largest delegation, 67 master plumbers making the trip. Salt Lake City alone contributed 30, one lone man staying regretfully to attend to the needs of the city in the hasty repairs line. The Salt Lake City Master Plumbers' Association is boosting vigorously for the next national convention, hence its specially large representation at Denver. The Denver local is co-operating heartily with the Utah men.

Pres. Chris. Irving, of Denver, called the convention to order at 10 a. m. on Monday morning, and after extending a cordial welcome, took up the usual routine convention business. During the afternoon session, the ladies in attendance were given an automobile ride. In the evening the delegates and visitors were entertained at a a theater party at the Orpheum Theater.

On Tuesday morning was held the final session of the convention, at which time officers were elected for the ensuing year. The delegates showed their appreciation of the work done during the past year, and their confidence in the present official staff, by re-electing unanimously all who have been responsible for the affairs of the organization, as follows: President, Chris. Irving, Denver; vice-president, Henry Green, Salt Lake City; treasurer, A. P. Gumlick, Denver; secretary, Chas. A. Dehn, Denver. The executive committee is composed of the officers and J. E. Nash, Cheyenne, Wyo.; M. Stone, jr., Greeley, Colo.; E. L. Moore, Longmont, Colo.; F. Burgess, Boulder, Colo.; J. W. Hesselden, Albuquerque, N. M., and Dennis E. Burke, Pueblo, Colo.

Among those in attendance were the state vice-presidents, A. W. Haas, Colorado Springs, Colo.; James R. Lusk, Boise, Idaho; Chas. J. Higson, Salt Lake City; J. L. Bell, Albuquerque, N. M.; P. S. Cook, Cheyenne, Wyo.



Chris. Irving, Denver, the Re-elected President.

On Tuesday afternoon the delegates and visitors enjoyed the game between the Denver and Omaha clubs at Broadway Park, and in the evening a delightful banquet, followed by a dance, was held at the Albany Hotel, the convention headquarters.

BOSTON NORTH END UNION PLUMBING SCHOOL HOLDS GRADUATING EXERCISES.

Sixteen young men were graduated from the plumbing school of the Boston North End Union on the evening of June 2d and at the same time announcement was made that the school, which for 17 years has been located in the North End of Boston, is soon to become a part of the Wentworth Institute in Roxbury. In the 17 years of its existence the school has awarded diplomas to 709 boys. The only reason for the change at this time is the opportunity afforded for better work with the increased facilities which will be available at the Wentworth Institute.

Addresses were made at the graduation exercises by the Rev. E. A. Horton, who was the presiding officer; David Craig, of Boston, former president of the National Association of Master Plumbers, Andrew F. Curtin, of Medford, former president of the Massachusetts State Association and a director of the National Association; Edwin D. Mead of the North End Union and Arthur L. Williston, a director of the Wentworth Institute.

Diplomas were awarded by Superintendent Samuel Hubbard of the union to the following: Emil Bernardin, Lawrence; Arthur E. Boltz, Dorchester; Lysander Cooney, Cambridge; J. Forrest Gard Lynn; Charles A. Grimes, Winthrop; J. N. Hale, West Somerville; Ralph Harnois, Lynn; Andrew C. Herbert, Lynn; Albert N. Hird, Dorchester; William Marden, East Boston; J. F. McCarthy, Belmont; Abraham Rainer, Malden; William H. Smith, Medford; Charles L. Trudeau, Dorchester, and Nye A. White, South Weymouth.

The 29th Annual Convention of the National Association of Master Plumbers

Held in Galveston, Texas, June 13, 14 and 15, 1911

From the North, South, East and West, the delegates to the 29th annual convention of the National Association of Master Plumbers have flocked to Galveston, despite the predictions made of the intense heat to be expected in this, the most southerly meeting-place they have ever selected. National President A. Selden Walker, who has steadily urged upon the plumbers assembled in their state conventions the great profit as well as pleasure to be derived from an inspection of the many features of interest the Lone Star State, and Galveston in particular, presents to visitors, declared that since leaving home he had passed through six states, and found Galveston the coolest spot he had enjoyed since leaving his New Jersey home.

For several days the hosts have been gathering, the convention of the Texas State Association bringing the

A. Selden Walker, East Orange, N. J., the Retiring President of the N. A. M. P.

Texas plumbers and their friends to Galveston before the opening of the national convention. They were not the only outsiders last week, however, for the advance guard began arriving before Sunday, although the opening session of the National Association did not take place until Tuesday morning, June 13th.

On Monday the crowd arrived in full force, the delegations from Chicago, Philadelphia, Boston, Washington, San Francisco, Seattle, Denver, Milwaukee, Syracuse, New York, Baltimore, and other large cities coming in. It took three standard sleepers to bring the Chicago delegation, and the Baltimore and Philadelphia contingent required a car for each. Kansas City's representation filled two sleepers, arriving Tuesday. At the time this is written it is impossible to tell either how many delegates have arrived, or the number of visitors who are not delegates, but who have taken advantage of this opportunity to see for themselves the glories for which "Domestic Engineering" has endeavored to prepare its readers during the past weeks.

The local association of master plumbers has done everything in its power to give the visiting hosts a delightful time, and has been aided by the hearty co-operation of the Galveston Business League. As the outward indication of the success of their untiring labors, the city presents a most attractive appearance, signs of welcome in many forms assuring the guests that they are considered the guest not only of the master plumbers, but also of all the inhabitants of Galveston.

On Monday night the first gun in the week's salute was fired, the opening event of the program of pleasure prepared by the Committee on Entertainment being an informal reception in the hall of the Scottish Rite Cathedral. Many delegates with their ladies were present, to renew acquaintance with those whose attendance at the Galveston convention had been anticipated as the only opportunity of strengthening the ties formed by well-remembered meetings in other cities with kindred spirits separated by distance, not desire. The hall, which is also the scene of the business-sessions of the convention, was most artistically decorated with flags, bunting, and palms in great profusion. A fine orchestra of ten pieces made dancing a joy despite the temperature—if the devotees of the art terpsichorean ever take that into consideration when given the opportunity to indulge in their favorite recreation—and in the intervals the dancers and non-dancers were sustained with most delightful fruit-punch. This punch is a star feature of the entertainment. It is constantly ready for all comers at the headquarters of the Galveston hosts in the Tremont Hotel, and the presiding genius is kept busy.

Opening Session.

On Tuesday morning the strength of the assembled hosts began to be appreciated. Headed by Shaw's Military Band, the delegates and their friends left the Tremont Hotel, one block distant from the Scottish Rite Cathedral, and marched in imposing procession to the convention hall, where A. Selden Walker, president of the national organization, opened the convention with due formality. The rector of Trinity Church, the Rev. Charles S. Aves, pronounced the invocation, after which an address of welcome was delivered by Daniel Sullivan, commissioner of waterworks, Dallas, who took the place of the Hon. O. B. Colquitt, governor of Texas, whose presence had been expected at this time but who was detained by a previous engagement. Mr. Sullivan was followed by the Hon. Lewis Fisher, mayor of Galveston, who gave a cordial welcome to the visitors on the part of the municipal authorities. Col. J. H. Hawley then assured the delegates of the pleasure it had given the commercial interests of the city to prepare for their reception and to have them see the new Galveston that awaited their inspection. To this three-fold welcome the conventioners, who by this time really felt sure their presence was appreciated, made suitable answer through Joseph Ryan, of San Antonio, who took the place assigned on the program to Joseph Netzer, of Laredo, retiring state president.

Andrew Young, of Citronelle, Ala., past-president of the National Association of Master Plumbers and also past-president of the Chicago Master Plumbers' Association, who was formerly for many years chief sanitary in-

spector for the city of Chicago, then favored the convention with a speech in his usual happy vein.

L. A. Menageaux, vice-president of the New Jersey State Association, then asked the privilege of the floor for the purpose of presenting to President Walker, on behalf of the New Jersey members, a beautiful silver-mounted ivory gavel. After a fitting response by President Walker, George E. Robinson, chairman of the General Arrangement Committee, announced the various features of entertainment and read telegrams.

President Walker then made the following appointments:

Sergeant-at-arms: P. J. Sheehan, Dallas; W. E. Thatcher, Fort Worth; J. F. Madden, Sherman.

Committee on Credentials: J. H. White, Paterson, N. J.; S. S. White, Pittsburgh, Pa.; James Smyth, Spokane, Wash.; James H. Aitkin, New Orleans, La.; C. Joughin, Tampa, Fla.

The convention then adjourned for luncheon.

Afternoon Session.

At the afternoon session the Committee on Credentials reported a quorum in attendance, and President Walker delivered his annual address, of which a report will be presented later. It was most creditable and exhaustive.

The convention then adjourned until the next morning, and devoted its attention to pleasure instead of business.

The Entertainment Committee had arranged for a trip on the Mallory Line "Denver" from the docks at the foot of 25th street on the bay and through the jetties out on the Gulf of Mexico. This trip, which was one of the most enjoyable features of the many diversions provided, occupied the remainder of the afternoon.

Wednesday.

The third session of the convention on Wednesday morning brought the report from the Committee on Resolutions, which will appear in our fuller account of the convention next week.

Following this, S. H. Morgan, of Detroit, Mich., favored the assembly with one of his famous addresses, illustrating it by means of a blackboard and arousing great interest in his audience.

The fourth session, on Wednesday afternoon, was executive.

After the strenuous exertions of the day, the delegates sought relaxation by means of a bathing party and Dutch lunch at the Surf Pavilion, one of Galveston's justly famous resorts. This was a most enjoyable affair, and included dancing as well as swimming.

Thursday.

On Thursday morning business was resumed in an executive session which lasted until noon. Following the executive session, without pause for lunch, an open session was held, at which the customary reports were presented from the treasurer, the Auditing Committee, the Sanitary Committee and the Legislative Committee.

Election of Officers.

Next in order was the election of officers. Lloyd D. Mitchell, of Baltimore, president of the Maryland Association, was appointed as judge, and Ed. F. O'Connor, of Denver, and John J. Hannegan, of New York, were the tellers. The balloting resulted as follows: In accordance with time-honored custom, Vice-president Alfred C. Eynon, of Canton, O., succeeded to the presidency. The new vice-president is Frank J. Fee, of New York City. Louis A. Deuble, of Canton, O., was chosen as secretary. In recognition of the faithful work of Wm. McCoach, of Philadelphia, who has been treasurer for six years, he was again given the responsibilities that go with the honors of that position.

With all the formalities suitable to the occasion, the newly-elected officers were duly installed.

The convention adopted the usual resolutions of thanks to the retiring officers for their labors during the past year; to the Committee on Arrangements for its bountiful provisions for all needs, mental and physical; and to the press for all the courtesies shown.

The Galveston local was voted $1,000 to assist in defraying the expenses incurred in catering for the visitors.

The Salt Lake City delegation was successful in its determined effort to capture the next annual convention.

Alfred C. Eynon, Canton, O., the New President of the N. A. M. P.

For a list of the many attractions they offered as an inducement to visit the Mormon stronghold, readers of "Domestic Engineering" are referred to the open letter from the Salt Lake City Local, published in our issue for April 29th.

On Thursday evening occurred the most important event of the week, from the ladies' point of view. We refer to the grand ball, which was held in the beautifully decorated Scottish Rite Hall. For particulars, see the next issue.

For Friday the indefatigable Galvestonians had arranged an old-fashioned barbecue and picnic at Dickinson Park, which, like all their plans, proved a great success, and the departing guests made their own the closing line of the program, "Glad U Kum," as they regretfully left the scene of so many pleasant memories.

Watch for full report with many photographs in our great Convention Number next week.

Kitchens and Laundries

Their Plumbing Arrangement Equipment and Sanitation

By Wm. Paul Gerhard, C. E.

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CHAPTER VII. THE DOMESTIC LAUNDRY.

Definitions.

The "laundry" of a home is the room set apart for washing and ironing purposes. In the case of large institutions, the term "laundry" is used to designate a group of rooms, and quite often the detached building, or part of a separate building, wherein the many operations involved in the laundering of clothes are carried on. Public laundries or washhouses are special buildings, found in many of the cities of England as well as on the continent of Europe, where washwomen or housewives can go to perform their laundry work upon the payment of a small rental, rather than have the drudgery of washing day at home. Besides public laundries, there are in every city, here as well as abroad, numerous private commercial washing establishments, which are designated as laundries, though industrial or steam laundries would perhaps be a more correct term.

Location.

In small dwelling-houses, and in the cheaper class of apartment-houses, the kitchen and laundry are often combined, or, in other words, the kitchen is made to answer

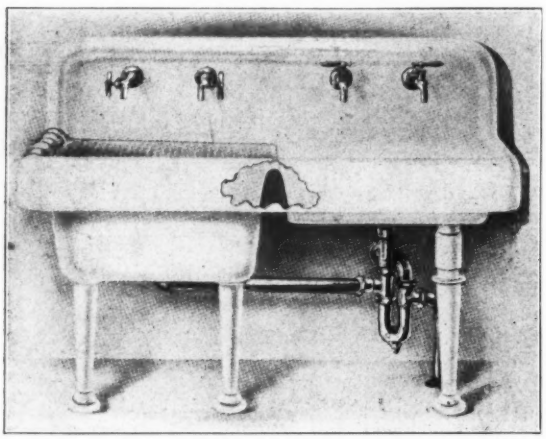


Fig. 1.

not only for the cooking but also as a laundry. But while such a plan may be convenient, where only one servant is kept, or where the house-wife does her own work, it is not an arrangement at all to be desired, from the point of view of health and comfort. In such a case, sets of two or three washtubs are placed generally in an alcove of the kitchen, hot-water being furnished by the kitchen boiler. Kitchen washtubs are generally provided with covers, which answer as a kitchen table when the tubs are not in use.

Fig. 1 shows a one-piece enameled iron sink and laundry combination, made by the Cahill Iron Works, of Chattanooga, Tenn., a fixture intended for small kitchens and having the advantage that, owing to the separate partitions between sink and tub, as shown in partial section, the enamel will not be damaged by expansion and contraction, when the tub is filled with hot water, and the sink with cold water, or vice versa. A two-compartment

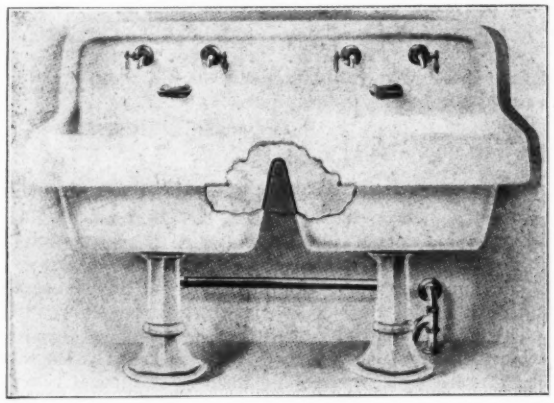


Fig. 2.

laundry tub, constructed on the same principle and of the same make, is shown in Fig. 2.

For sanitary reasons it is certainly far preferable to keep the laundry separate from the kitchen.

The separate domestic laundry is, in city houses, as a

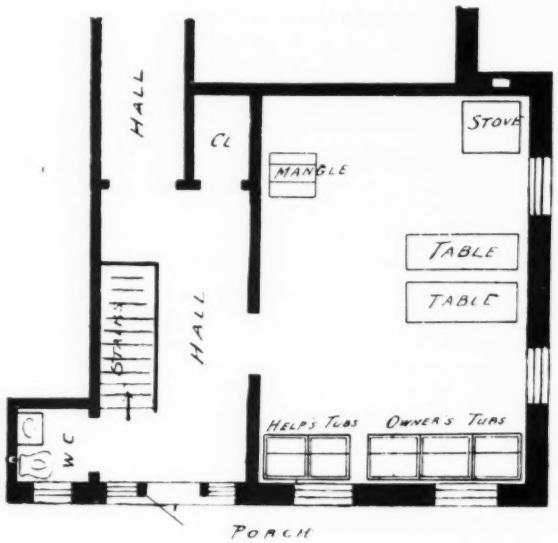


Fig. 3.

rule, located in the basement, adjoining or near the kitchen. In a few exceptional cases it has been planned to be on the top floor. In country houses it is customary to place the laundry in a side or service wing on the ground-floor of the house.

In the case of large country mansions, the laundry is

sometimes provided for in a special detached building, located entirely separate and away from the house proper. This arrangement is a favorite one for English country mansions, but is not so much adopted in the United States, perhaps because it is not an economical one. Such a

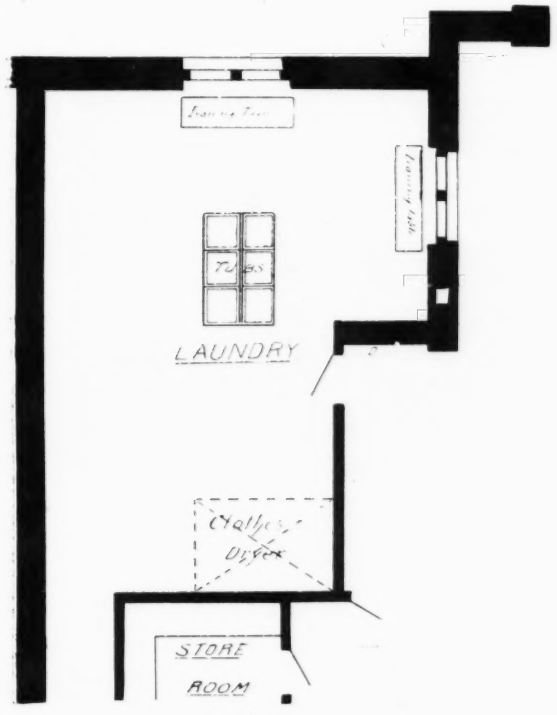


Fig. 4.

detached wash house should contain at least two rooms, namely, a wash-room and an ironing-room. The former is often fitted up, not only with stationary tubs for hand-washing, but also with a small domestic washing-machine, and sometimes with a wringing-machine, while the ironing-room has not only wide tables for hand-ironing, and a stove for heating the irons, but also a domestic mangle, as a substitute for some of the hand-ironing. The domestic mangle is either the old-fashioned cumbersome box-mangle, or the improved cylinder-mangle. Such a complete laundry equipment is desirable because it reduces the amount of labor, and plenty of space should be provided in the plan for such labor-saving appliances.

The location of the laundry-tubs in the cellar, as so often found in the cheaper country houses erected by speculative builders, is always an undesirable one.

In the more pretentious modern apartment-houses a general laundry is often provided to serve for all the tenants, the washing of each family being done on a different day, and the laundry is located either in the basement, in the attic or in a roof house. Basement laundries are objectionable in apartment-houses on account of drainage difficulties, where the basement is low, and also because the laundry odors are apt to rise and pass into the living-rooms above. If any kind of washing machinery is used, basement laundries are furthermore apt to become objectionable on account of the noise of the machinery.

When a laundry is located on the top floor, the laundry odors are avoided, but special precautions are obviously required, the same as in the case of top floor kitchens, in order to avoid damage to ceilings and the floors below by accidental overflows of water. The floors should therefore be waterproofed in a thorough manner, and where practicable they should have a floor drain, safe waste, or drip-pipe discharging on the roof or elsewhere, and the supplies, the wastes and the overflow pipes of the tubs must be arranged in the safest possible manner. According to the number of families to be accommodated, there may be one or several rooms for washing and for ironing.

In all locations, it is necessary to guard against the danger from fire, which so frequently has its origin in the laundry.

Recent model tenement-houses, fitted up with washtubs in each tenant's apartment, are sometimes fitted up with gas or steam-heated clothes-dryers, which will be described later on, and which are usually placed in the basement and used by the families alternately.

A laundry-room should always be of generous dimensions to contain the necessary furnishings and to afford plenty of room for the work of the laundress.

It is very desirable that the floor in a laundry should be water proofed and either cemented or else tiled, and the walls are best if finished either in glazed brick or else with glazed tiles.

Perhaps the most essential requirement in a laundry is

Fig. 5.

good ventilation, by which all smells and steam vapors are immediately removed. Ventilating fans driven by electricity assure positive ventilation.

Plans of House Laundries.

Fig. 3 shows the plan of a roomy laundry of a country-house, containing not only a set of three tubs, but a special set of tubs for the servants' wash, also two ironing-tables and a domestic mangle. Another large laundry of a country mansion is shown in Fig. 4. It contains two sets of three tubs, standing back to back, in the center of the room, which is well-lighted. It also contains a clothes-dryer. Another plan of a laundry with four tubs, and with a gas-stove for heating the flat-irons, is shown in Fig. 5.

Fig. 6 shows a view of a modern house laundry, fitted

with tubs, with stove, with clothes-boiler and with an automatic gas water-heater. The view is taken from the plumbing catalog of the Standard Sanitary Manufacturing Co., of Pittsburgh.

Fixtures of the House Laundry.

The laundry should contain a set of stationary wash-tubs, for soaking, washing, rinsing and bluing the clothes,

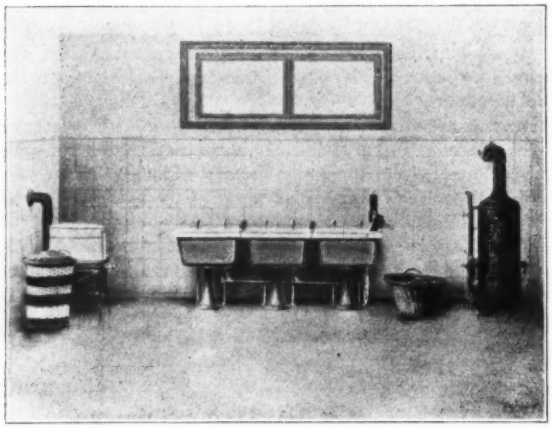


Fig. 6.

fitted with hot and cold water, and with rubber roller wringer and wringer bases. Usually a set of three tubs is installed, but sometimes four and even five tubs are used, this depending upon the size and the character of the house. The tubs are, where practicable, set at a window for the sake of good light. The tubs may be of Alberene stone (a kind of soap-stone quarried in Virginia), or of enameled iron (Fig. 7); the best, though the most expensive, washtubs are those of solid white porcelain or of glazed fire-clay, set on porcelain feet (Fig. 8). Some tubs have a wash-board moulded into the tub, but

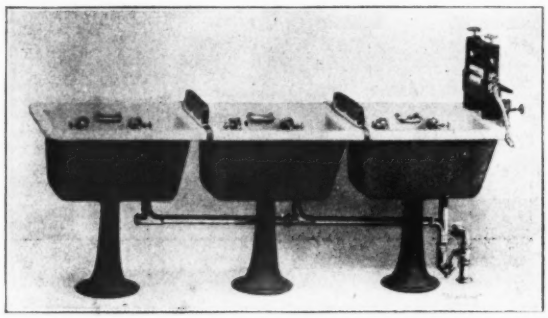


Fig. 7.

usually it is not of much use, because the slant of the front of the tub is not at the right angle for proper rubbing. It should, perhaps, be mentioned here that, as a rule, washtubs are set somewhat too low, necessitating too much stooping over and tiring the back of the laundress. This is a point to which some attention should be paid by the plumber in setting up the fixtures in a laundry.

There should be a laundry-stove, specially adapted in shape and size to the requirements of laundry work, and generally made with a flat oval top for setting the wash-boiler, and with sufficient places either on the top or on the sides to heat a number of flat-irons. Sometimes a separate laundry-boiler is fitted up, heated by a coil or water-back in the stove or range, or by the clothes-dryer stove. Usually, however, hot water is obtained from the general hot water supply of the house. In the example shown in Fig. 6 hot water in abundance is obtained by means of an automatic gas water-heater.

In some houses provision is made for a special copper wash-boiler, set in masonry with grate and with flue

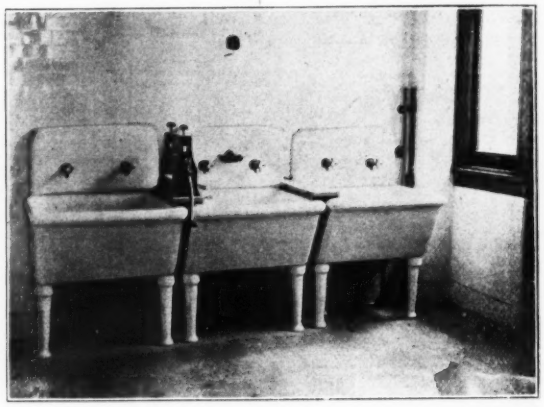


Fig. 8.

connection, for the boiling of the clothes, or a special French laundry range is used with copper clothes-boiler and a special vapor-pipe to remove the steam and odors.

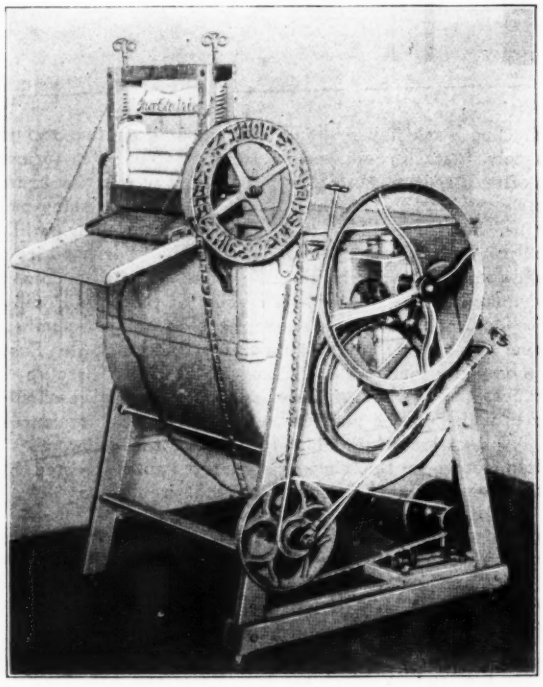


Fig. 9.

The top plate of such a range is used for the heating of the laundry irons.

There should be sufficient floor space in the laundry for one or two ironing-boards or ironing-tables, which are generally placed in front of a window. Larger house

laundries sometimes include a hand—or electrically—operated washing-machine and three-roll wringer, such as the "Domestic" washer shown in Fig. 9, or else they are equipped with a hand-operated mangle. The laundry clothes-wringer should be adjustable and sometimes it is operated by an electric motor, as shown in Fig. 10. Sometimes special gas-heaters for the heating of the flat-irons are set up, as in Fig. —, and in more recent years electrically-heated laundry irons are coming into use (see Fig. 11).

For domestic laundries a very convenient and efficient apparatus is the combined laundry stove and dryer. As

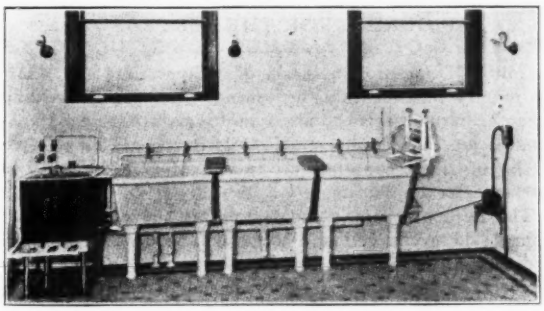


Fig. 10.

the illustration, Fig 12, shows, one single fire in the stove serves to boil the clothes in the wash-boiler, to heat the water in the laundry-boiler, to heat the flat-irons, and to furnish heat for drying the clothes. Such a fixture occupies but very little space; it avoids the washing smells which occur when clothes are dried indoors on clothes-lines during stormy weather. When a stove is not wanted, the clothes-dryers may be heated by means of gas-burners, as in the Chicago gas-heating clothes-dryer (Fig. 13),

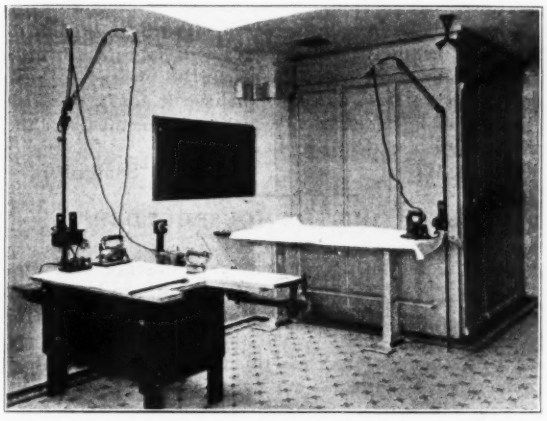


Fig. 11.

or else by pipe coils, in which hot-water or low-pressure steam circulates.

Clothes-dryers are of special advantage where insufficient out-door space is available in the back-yard of city houses for the drying of clothes. The usual sizes of such apparatus for residences are:

For houses of moderate size: Length 7 ft., height 7 ft., width 2 ft. 8 ins., containing either 3 or 4 racks.

For larger houses: Length 7 ft., height 7 ft., width 3 ft. 10 ins. to 4 ft. 5 ins.

The racks or horses, on which the clothes are hung, slide easily on a frame built of wrought iron bars. The frames are galvanized and hence do not stain the linen with rust. One-half hour is usually sufficient to dry the clothes in the dryer.

The principal advantages secured by the installation of such apparatus are: They render washing operations easier and independent from weather conditions; they avoid the discomforts of having to go outdoors in cold or stormy weather; they avoid the freezing stiff of the

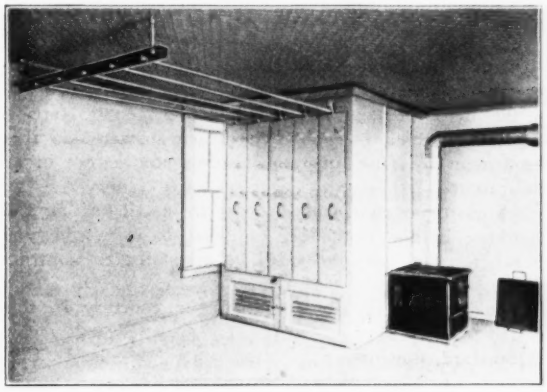


Fig. 12.

wash or the wetting of the clothes when a sudden shower occurs; they do away with the ripping of linen by strong winds, and prevent the clothes from getting covered with dust and soot. It may therefore well be claimed that such domestic dryers have almost become a household necessity both in the city and in the country.

Laundry Equipment.

A complete equipment for a well-appointed home laundry should therefore consist of the following:

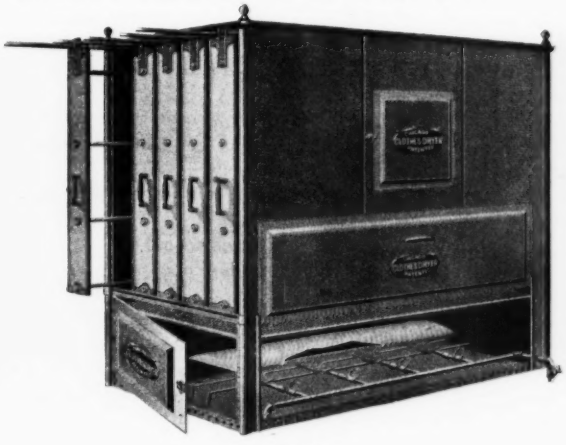


Fig. 13.

A set of three, four or more washtubs; a clothes-wringer; a clothes-boiler; a wash-board; a clothes-basket or hamper; clothes-horses; clothes-lines and clothes-pins; one or more ironing-boards covered with thick flannel; a hand-mangle; a set of flat-irons, of various sizes and weights, which should be kept in a dry place when not in use.

The laundry closet should contain all the requisites necessary for properly performing laundry operations, such as laundry soap, naphtha soap, borax, alum, ammonia, oxalic acid, Javelle water, bees' wax, paraffine, soda, lye, bluing, starch, washing-powder and turpentine.

BUSINESS MANAGEMENT

NEW METHODS FOR OLD

HOW WOULD YOU CHARGE FOR A JOB, IF NO CONTRACT PRICE IS ASKED FOR?

Editor "Domestic Engineering:" I am very much interested in your valuable journal, and of late particularly in the department of Business Management. Here is a question which I would like to see answered in that department by plumbing and heating contractors in an early issue:

If a customer gave you an order to install heating and plumbing in his residence, on what basis would you charge for the work, provided he asked for no contract price?

Thanking you in advance for your courtesy in this matter.

Brantford, Canada. H. D. C.

SOME PRACTICAL QUESTIONS ANSWERED.

Editor "Domestic Engineering":—I have been a subscriber to your valuable paper a long time and have received much valuable information from it. You ask some questions under "Business Management" which I will answer.

Suppose that you had a son about 20 years of age; perhaps a year or two younger, or maybe a year or so older than that, it doesn't matter. Now the boy has been through the high-school and wishes to come into the office with the view of acquiring a knowledge of the business. What would you do with him?

1. Would you insist that he go into the shop and learn the trade?

I would have him in the shop for two or three years.

2. Would you prefer to have him get more education, and so send him to some college?

He needs more education, but it is not necessary to send him to college.

3. Would you send him to a trade-school?

I would have him attend a trade-school after he had been in the shop.

4. Would you send him to some business-college?

I would have him attend a night business-college while in the shop.

5. Would you take him right into the office and attempt to teach him the business yourself?

I would then take him in the office and teach him the business.

This is my ideal of a boy's education if he wants to follow the profession of master plumber. Times have changed and the plumber of the future must be a business man as well as a practical man to succeed. The time is fast passing that the journeyman can step into the master's shoes with no other qualification than being a first-class mechanic. This is, I believe, the trouble right now. There are too many journeymen rushing into the business, who are satisfied with getting little more than actual cost of labor and material. They will keep at it a little while and quit, but while they are at it they hurt those who know that it takes more than getting back the cost of labor and material to be able to stay in business. An education as outlined above, I believe, will teach it.

C. G.

FIGURING FOR THE "EXTRAS."

Editor "Domestic Engineering":—Some time ago I saw an inquiry in your valuable journal from J. J. regarding what he terms "extras," also your reply to same. It occurs to me that the question, while it appears on its face to be of small consequence, is one of considerable importance to the trade.

The item of extras, "incidentals" is the term we use, appears in every estimate we make. Our estimates on ordinary plumbing and heating jobs show 5 per cent for incidentals. On small jobs which should be done by the hour, but which we are compelled to figure on to satisfy a customer, we figure 10 per cent for incidentals.

On this basis incidentals are figured uniformly in all work estimated, because we look upon it as a sort of overhead expense, a proportionate part of which all work should stand. It includes all items too small to mention specifically in estimates, and the element of risk referred to in your reply to J. J.

It may, and often does, occur that several contracts in which a charge of 5 per cent has been figured for incidentals, run along smooth enough to require but a small portion of the amount allowed. Then, owing to accidental breakage of an expensive fixture, or other reasons, this item will, I find, be increased more than enough to offset what has been gained in previous job.

Having stated my views, I should be pleased to hear from others on this subject. I believe it constitutes one of the stumbling blocks over which many members of the craft fall and lose their profits.

Kenosha, Wis. "Subscriber."

"EDUCATING THE HOUSEHOLDER."

Editor "Domestic Engineering":—I observe that two parties, viz., "G. G." and "Not-a-Mutt," seem to have some views on the subject of educating the householder as to doing his small repairing, and that the same views are very much opposed to each other. Now both of these aforementioned gentlemen are right and, at the same time, they are both wrong.

As per "G. G.," the householder does kick at having to pay several dollars for "two-bits" worth of service. He has a right to. It would make either you or me do the same act. "Not-a-Mutt" is evidently Not-a-Salesman. He seems afraid of losing the little job-work that comes to the average shop, and believes that the trade would go to the bad if the plumber did not get it all. Still, at that, he is, in a measure correct, for the average householder should not be allowed to do his repairing, for many sanitary reasons which could be stated.

Now there is a way to get around this difficulty and please all who are interested, and, at the same time, each will have a fair chance and no one will be "stuck" or

have a kick coming. The manner in which this can be done is as follows: Take the contract to keep a customer's heating and plumbing jobs in repair for a certain sum of money (agreed upon mutually) each year. Of course, if the customer breaks a closet-bowl and explodes a range-boiler, one might lose upon that particular party, but, on the other hand, there would be many to whom very little attention would have to be given. The writer has observed several cases in which the master plumber has done as has been here suggested and the matter has turned out to the satisfaction of all concerned. Trusting that you will see fit to print these few remarks, I will now lay down the pen. "Contract."

SEVEN POINTS FOR THE MASTER TO PASTE IN HIS HAT.

1. This place of business is going to make a fair living profit on all work and goods, or it is going to shut down quick.
2. The owner is going to know just what those profits are and no guess work goes.
3. Only the best of help along all lines will be employed. Dishonest people, time-killers and booze-fighters need not apply.
4. When a contract is completed, it shall be settled for in full. No percentage shall be held back "to see if the job works well."
5. The business comes from our customers. Consequently no effort must be spared (within the bounds of reason) to satisfy them and make each customer a walking advertisement.
6. First-class work, only, will be permitted. Therefore consistency requires that first-class goods, only, shall be used and the best of tools employed to bring about the desired end.
7. The stationery shall be attractive and up-to-date, the show-room ditto, and a certain percentage on the entire business shall be set aside for advertising purposes.

THE MERCHANT AND THE MECHANIC.

Editor "Domestic Engineering":—I noticed in one of the previous issues that a gentleman from Kansas City asked the question: "When does a merchant cease to become a mechanic?" and I would like to answer it from the point of view of one who has been both.

I should say that it depended greatly on the stability and character of the man himself. You take a pin-headed man, whom some sudden turn has raised above his usual surroundings, and the chances are that he will, of a sudden, acquire a decided leaning toward the codfish aristocracy that adorns (?) this land of ours. Such a man will strive to forget that he ever dirtied his hands with the toil of an honest trade, and he will make a big play to become one of the powers that be, in a plug hat and a Prince Albert. You see this exemplified in many places throughout the land.

Such a party isn't a man, he is a mutt. On the other hand, you can take a man who works his way upward and, though he is gradually forced to lay aside the tools that have won him his livelihood in order to take up the greater matters which will occupy his attention, he never forgets that he has done his turn with the tools. He will see many ways in which the knowledge gained at his trade is of direct benefit to him. Such a man will be proud of the fact that he has "come up through the ranks." He will never blush to allude to the fact that, a few years back, he was drilling around with a kit of tools on his shoulder. He will have a good word and a hand-shake for those of his associates who have been less fortunate than he has been, who have never climbed out of the craft. There are many such in this country and they are the ones I should call the true American men. Maybe this won't agree with some people's views, but it is the way that it strikes me and so I should say that the true man never ceases to be a mechanic, in the broad sense of the term. He may not grab up the tools every day, but he may direct a hundred different things every day that call for the display of his knowledge gained at some craft, and as long as he does this he is a mechanic in thought and spirit, even though he does not have the time to handle the tools.

J. H. D.

SOME PERTINENT QUESTIONS.

Observing that there are some "live-wire" remarks, pro and con, running in these pages from week to week regarding the question of "tri-trade experts," we desire to submit the following questions which seem to us to have a bearing on the subject and may bring out points that have not been treated upon to any great extent, if at all.

1. In order thoroughly to learn his trade (be it tinsmith or plumber or steam-fitter), how long a period of time should the apprentice serve? To be sure, there is a vast difference in the mental powers of the various boys that come into the shop, but we ask that you assume the average case.
2. Just what, or perhaps how much, will the boy acquire during the first year; the second year; the third year, and all the other years that you think that he ought to serve?
3. Perhaps he might not have to serve a year. If so, tell us all about it and just how he would get "hep" to the thing in that time.
4. If one trade in less than a year is good, four trades in four years might be better. If this can be done, we offer you here the chance to tell how it can be accomplished.
5. When, if ever, does the apprentice become what we call "a first-class man"? Define the term for us, as it appears to you from the angle at which you see the matter.

That's enough for this time. There are several others in cold storage ready to be sprung when this bunch is answered. Get busy.

MASON CITY, IA., MASTER PLUMBERS ORGANIZE.

The master plumbers of Mason City, Ia., have formed an organization for the purpose of advancing sanitation and sanitary education, and for training men in the art and science of plumbing. The organization will also be a means of mutual protection in case of trouble arising either from irresponsible concerns or unreasonable demands from workmen. The articles of incorporation provide for a board of directors, who will have charge of the association's affairs. The first board is composed of T. J. Daily, J. H. Garvey, J. H. Boyd and B. B. Daggett.

Louisville, Ky.—F. S. Schardein & Sons have recently been awarded the following contracts: Plumbing and heating in the Alex Myer apartment building, amounting to $4,850, and in the P. G. Coker apartment building, valued at $3,000, both of Louisville, and a heating and pneumatic waterworks system costing $4,000, in the LaGrange High School at LaGrange, Ky.

The Range Boiler and Connections

Uses, Abuses and Modifications

By Phoenix.

CHAPTER III.

Sometimes it is desired to heat the water in the range-boiler by a steam coil. Many people seem to think that the boiler must be slung horizontally to do this, but a steam coil can be put in the vertical boiler. It will be placed somewhat lower than the opening in the side of the boiler, supplied at the top of coil, the return opening being several inches below. In a drawing showing the range-boiler horizontally, instead of standing vertically, the steam coil would very closely resemble the letter "W," the beginning and end of the letter being the supply and return, respectively. We said, in the first chapter, that the size of range-boiler generally used in the ordinary kitchen varied from 30 to 60 gal. Other sizes might be used, and that their capacity and dimensions may be known, a table is here given, from 30 up to 200 gal.:

Size.	Dimensions.	Size.	Dimensions.
30 gal.	5 ft. x 12 in.	140 gal.	4 ft. x 30 in.
40 gal.	5 ft. x 14 in.	144 gal.	6 ft. x 24 in.
52 gal.	5 ft. x 16 in.	168 gal.	7 ft. x 24 in.
66 gal.	5 ft. x 18 in.	185 gal.	5 ft. x 30 in.
82 gal.	5 ft. x 20 in.	192 gal.	8 ft. x 24 in.
100 gal.	5 ft. x 22 in.	203 gal.	5 ft. 6 in. x 30 in.
120 gal.	5 ft. x 24 in.		

There are doubtless sizes made which vary from these figures, but enough are given to enable one to estimate the space required for the installation. Another means of heating the water in the range-boiler is the use of a pipe-coil placed in the fire-box of the stove, instead of the regular water-back. This is more frequently used in old-style stoves that were not built to receive a regular water-back, and sometimes results in robbing the oven of so much heat as to render it almost useless for baking. If the range-boiler be not too large, a simple loop, shaped after the fashion of the letter "U," should be sufficient, and should not rob the oven too much. Care will have to be used to set the coil level, and more care must be taken with its construction as the fittings are, many times, tapped out anything but straight. All the nipples and pipes that are used in the construction of the coil must be reamed. Some people prefer to make the coil of pipe one or two sizes larger than the size of the pipes connecting the coil and the range-boiler. Two objections that I have found in the use of these home-made coils are as follows: First, the fitter is apt to pick out any short pieces of galvanized pipe that he has. He seldom looks at the inside of the pipes, and many times I have pulled out pipes that had been more or less stopped up at the very start. Only pipes that are entirely smooth on the inside should be used. Another objection is that, at the points where the threads are cut, the pipe is rendered quite thin, and sometimes it does not take it so very long to break through at these points. Unless the fittings are true and the tools such that exact threads can be cut, it is almost impossible to turn out a coil that will level up properly. Many years ago, it is said, the hot water was supplied from the water-backs directly to the job, the tank not being then in use. There is a connection between the water-back and piping in use that is much liked by some plumbers, and it is claimed that quicker circulation and a more direct line of hot water are the result when a job is so connected. It would be made as follows, in the drawing which we are using as reference: The flow-pipe from the water-back to range-boiler would be disconnected at 10 and the opening in the range-boiler plugged at that point. Connect points 8 and 14 by two pieces of pipe and one ell. You thus have a direct draw of hot water from the front and at a time when the fire is first started up in the morning (in case the fire is allowed to go out at night), this would seem to be

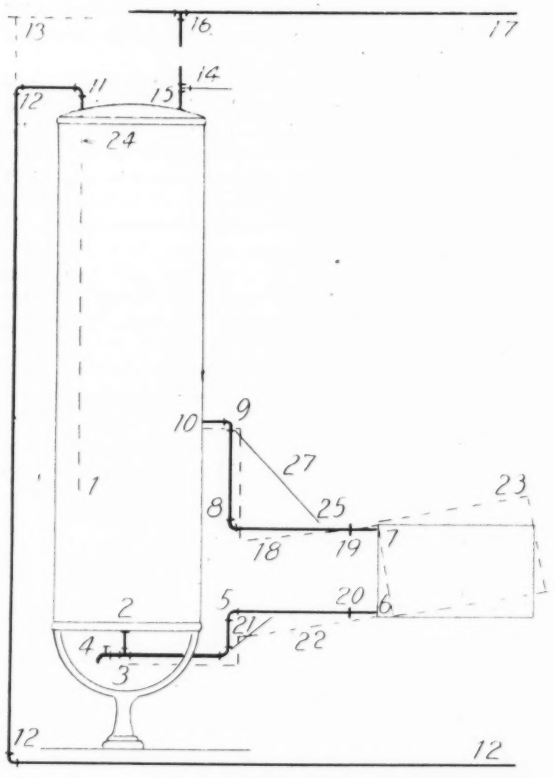


Fig. 1. The Range-Boiler and Its Connections.

an advantage. It is claimed, also, by many who have tried this manner of connecting the water-back and boiler, that the water in the boiler will heat more rapidly than if it were connected in the ordinary way at the side. The cold water to the boiler and water-back would be connected in the usual manner. Those of us who have put in years of work in the shop know that there are many kicks because the boiler does not heat properly. Before condemning any piping (unless it is to be seen at a

glance), why not apply some common-sense to such a problem and look the stove over? Many times the front does not give the required amount of heat simply because the owner either will not or does not know how to build and hold a proper fire in the stove. He, or rather I suppose it would be she, may run a flash fire, or the coal may be either too fine or too coarse, and in either case the water-heater would have to work to a disadvantage. Even with the best of connections and the proper adjustment of sizes as regards the boiler and water-back, if a large quantity of hot water is desired, a solid, steady fire will have to be maintained, or the results will not be up to the expectations of the job. Some kinds of fuel that are used will crust over the back (or front) until its efficiency is greatly reduced, just as the flues or surfaces in a steam boiler are rendered partially useless from being coated over. So here is a point that will bear inspection before any great tearing-out is made on a repair-job that you are called to examine. On the contrary, if the "kick" is about too much hot water (and a pounding, as steam has been generated in the range-boiler), you may look for a stoppage of the pipes from deposits of lime, which must be removed; or it might be a case of too much water-back and too small a boiler. In the latter case the power of the water-back may be reduced by making use of the hint just given, regarding the back's efficiency. Just plaster the back over with some fire-clay and the chances are that the boiler will then be heated to about the degree desired. Of course a smaller back might be used, but the owner often does not want to buy a new one.

THE NEW COLUMBUS, O., PLUMBING CODE MEETS WITH SOME OPPOSITION.

Columbus, O.—Since the enactment of the new housing code by the city council, which contains a number of very drastic provisions relative to plumbing, heating and ventilation, there has been a strong movement to secure its repeal. It is said that an effort will be made at the next session of the city council to have the ordinance repealed, and as a result the friends of the measure are rallying to its support.

A housing commission has been organized by about 75 of the best people of the city to see that none of the provisions of the housing code is repealed. Those in favor of the continuation of the measure say that they have received letters of commendation from almost every city in the country, and they are of the opinion that the code is the best that could possibly be devised. They admit there is one defect, which will be corrected later, but they do not want to see the entire ordinance invalidated because of the defect.

RECENT BUSINESS CHANGES.

New Ulm, Minn.—Nic Gulden and M. Hippert have purchased the establishment conducted by Stoll & Son, and will carry on the business under the firm name of Gulden & Hippert.

La Porte, Ind.—Edward Kanney has purchased the plumbing shop formerly conducted by Otto Weitz, 507 Main St., and will move the stock to his present place of business, 614 Monroe St., where he has an up-to-date plumbing, heating, and lighting establishment.

Fond du Lac, Wis.—I. L. Gault, who has been engaged in the plumbing business for 31 years, has transferred his business at 177 S. Main St. to F. O. Funkey, the deal taking place on the 21st anniversary of the day in which Mr. Gault took possession of the building now relinquished. Mr. Funkey is a practical plumber of 20 years' experience, and has been in business in Fond du Lac. Mr. Gault has not yet decided on his future plans.

Sioux Falls, S. D.—J. T. Summers has purchased the Fawick plumbing shop, 123 W. 10th St.

RECENT INCORPORATIONS.

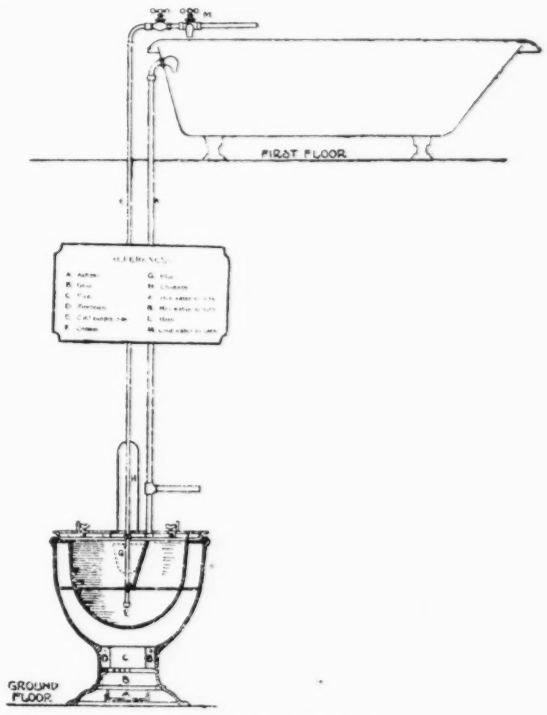
Cedar Rapids, Ia.—The "Suits Me" Plumbing and Heating Co. has been incorporated by E. A. Kegley and R. E. Neimeier, with a capital stock of $10,000.

Roanoke, Va.—The Howell-Haley Plumbing Co., with a capital of $10,000, has been incorporated with the following officers: President, J. E. Howell; vice-president, J. M. Haley; secretary and treasurer, G. W. Howell.

Fargo, N. D.—The General Engineering Co. has been incorporated by Fargo capitalists, and will soon be in active operation. The officers are: President, James Kennedy; vice-president, Alex Stern; secretary and treasuere, W. F. Fortune. The new concern has a capital of $50,000 and will engage in plumbing, heating and electrical work.

A NOVEL BATH WATER-HEATER.

At the Builders' Exhibition held last month at Olympia, Kensington, London, probably no one item attracted more attention than the "Conqueror" patent combination washing copper and bath water-heater, shown in the accompanying illustration. It is a well-designed copper, which



A Novel Bath Water-Heater.

can be used for ordinary purposes, but by merely fitting on a cover and screwing it down, a pressure boiler is secured. The flow is obtained by opening the cold-water tap, which may be placed at the bath or copper level. The pressure then drives the hot water up to the bath, or if this up-pipe has a tap and a second pipe with tap is carried to sink, the hot supply may be delivered to the sink. As one or other of these pipes must be open danger from explosion is impossible. It is said to be quite a cheap arrangement, well adapted for cottages and tenements.

Smooth of Him, Anyhow.

"He is in bad, isn't he?"

"I don't know whether they will be able to make a case against him or not."

"What were the circumstances?"

"He handed his mother-in-law a handful of matches and told her to go down the cellar and find the gas leak while he went out and got a gas-fitter."

CUSTOMER FELT COLD WITH THERMOMETER AT 80.

Editor "Domestic Engineering":—I have had trouble in settling up a job with a customer of mine who complained that the rooms felt cold when the thermometer actually showed that the heat was at 80 deg. in the places questioned. Now can you give me any reasonable explanation of this so that I will know what to figure on, or to look for in another job and not have any such thing happen again? "Anxious."

The persons might have been so constituted that they require a greater degree of heat than others, and might have actually felt cold with the temperature at that point. You want to recognize the fact that we are not all built on the same lines and act accordingly.

This effect might have been produced from poor ventilation. If the house was exceedingly well built, and no proper means of changing the air in the rooms had been provided, and the customer kept the rooms closed up tighter than a drum, we believe that such conditions as you describe might have been produced. If you have to make any changes we would suggest that, before you do anything, you look over the house and arrange for proper ventilation.

A LITTLE ARITHMETIC.

Editor "Domestic Engineering":—I have had some trouble to look up the following questions and wish that you would publish the answer so that it will be handy to clip for use.

What is the weight of a cu. ft. of water?
What is the weight of a gal. of water?
How many gallons of water in one cu. ft.?

C. C.

A cu. ft. of water weighs 62.5 lb.
One gal. of water weighs 8.228 lb.
One cu. ft. of water equals 7.476 gal.

A PRACTICAL METHOD OF POINTING UP SLATE STALLS.

Editor "Domestic Engineering":—Can you tell me how to point up slate stalls or fixtures? I read something about a cement some time ago, but have forgotten just what it was made of. R. J. H.

We have found that the most practical method of pointing up slate urinals and closet-stalls is to apply slaters' putty at the joints. This putty is a little pliable, and in case any of the slate slabs are given a severe knock or jolt, the putty will still remain in place. This substance being mixed with oil is non-absorbent. It can be purchased at any hardware store carrying a line of paints, etc.

Slaters' putty can also be used at the joints for slate sinks and laundry trays, though these fixtures are set up at the mills with a cement made from pure litharge and glycerine, and as the slate sinks and trays are also screwed together with the holes leaded, this arrangement makes a very solid fixture throughout. When making a cement of litharge and glycerine, it can be given a slate color by adding sufficient lamp black.

TROUBLE WITH THE PLUMBER'S SOIL.

Editor "Domestic Engineering":—When I go to use the soil it seems to crack off and cracks all up. What is the matter with it?

Beginner.

You have too much glue in it. Temper it down until it does not do so. The glue should be thoroughly dissolved in boiling water, after which the lampblack must be added, stirring in same until the mixture acquires about the consistency of paint. By experimenting a little you will soon be able to tell when glue or lampblack are needed in the mixture.

WANTS TO KNOW ABOUT THE HOUSE-TRAP.

Editor "Domestic Engineering":—Where a main-trap is put on the sewer line from the house to the main sewer, would it not be better to put two traps? Would it not be safer and more effective? Please answer in an early issue of the paper. "Traps."

We do not believe that it would. The "saving qualities" of a trap placed on the main line (granted that it is a wise practice so to install the work, which point admits of considerable discussion) depends upon the depth of the seal of the trap, rather than the number of traps. In the event of installing two traps, as suggested by the correspondent, we should think that there might be a considerable lack of circulation between the traps, or that the air might, under certain conditions, get locked between the traps. It seems to us that one trap, correctly set and of sufficient depth of seal, should be enough.

IS THE REFRIGERATOR A PLUMBING FIXTURE?

Editor "Domestic Engineering":—We had a discussion the other day in the shop on the above question. One of the fellows claimed that the refrigerator was a plumbing fixture, inasmuch as it was connected to the system, while the other claimed that it was not connected to the system at all. Will you kindly ventilate the matter?

I. C.

If the lot on which the house stands is large enough to allow the refrigerator to be connected so that the waste can be disposed of without allowing it to go into the sewer, we should believe that the better practice. In such a case, we do not see how the refrigerator could be regarded as one of the plumbing fixtures. In case the drip must go into the sewer, the pipes should never be directly connected to the sewer, as has been frequently explained in this paper. One or two disconnections should be made and the drips pass into open receptacles, properly trapped.

FROST-CLOSURE PREVENTION WANTED IN WINNIPEG.

Editor "Domestic Engineering": I have read with interest in your issue of April 8th, the article by W. B. Gray, of Louisville, on the "Relation of Soil and Vent-Pipes to Frost Closure," although I must admit the subject as treated is too technical for me to follow in all its phases. If I could persuade Mr. Gray to spend a winter in Manitoba he would have ample opportunity of studying the subject from a practical point of view. The question of solving the problem of soil and vent-pipes closing at the roof due to frost has occupied the attention of the best minds in the trade in this country for years without yet finding a preventative, which must be reasonable in cost and be applicable to all kinds and conditions of buildings. I enclose a blue print (Fig. 1) showing the method adopted about a year ago and incorporated in the City By-Laws, Sections 38 and 39, which are as follows:

Section 38. All soil, waste and ventilating pipes shall be located inside the premises; and all terminals of such pipes shall be located not less than ten feet distant from

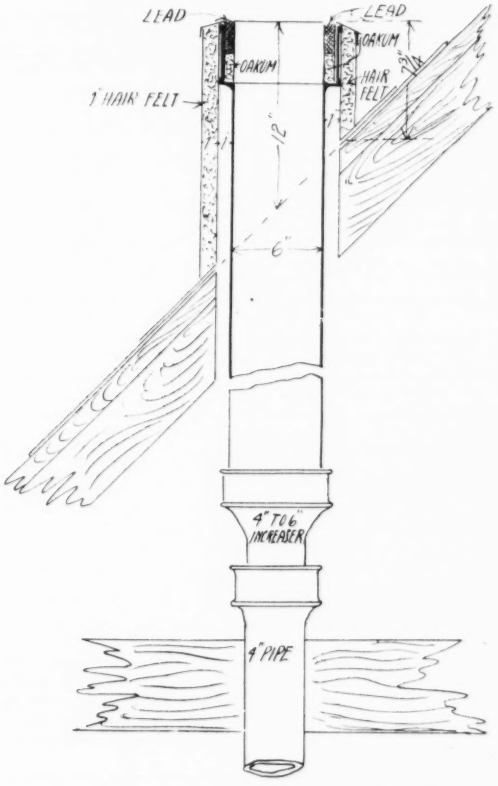


Fig. 1. Soil-Pipe Construction in Winnipeg.

or two feet above any opening window, door or other opening in the same or any adjoining premises in existence at the date of the permit for the installation of such pipes; and no such pipe-terminals shall project or be exposed to the outer air for a greater length than two feet or a less length than one foot above the roof.

Section 39. All terminals of soil, waste and ventilating pipes of four inches in diameter or less, shall be increased at least two inches in diameter before passing through the roof of the premises. The portion of all pipe-terminals above the roof shall have a hub and shall be protected by a double casing of galvanized sheet-iron, the inner casing to be at least two inches and the outer casing to be at least four inches greater in diameter than such pipe-terminal, and the space between such and inner space shall be packed with hair-felt or other suitable material, and the whole shall be made weatherproof by a cap fitting tightly over the casings and pipes, and calked into the

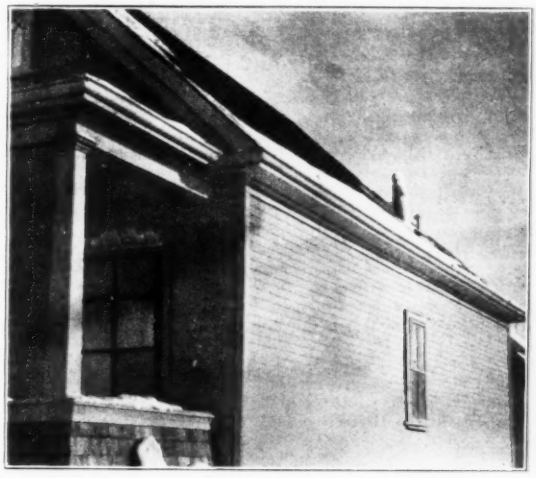


Fig. 2. Showing Ice on Top of Soil-Pipe.

hub, or by such other suitable device as may be approved of by the City Engineer.

It will be seen that not only are all pipe-terminals increased 2 inches before passing through the roof, but no such pipe can be extended above the roof more than two feet and the exposed pipe is protected by a double casing, the inner casing acting as an air-space and the outer casing is packed with hair-felt.

Notwithstanding all the precautions taken we still have considerable trouble with the pipes freezing up above roof and I enclose a photo (Fig. 2) showing a soil-pipe terminal of a house with about a foot of ice on the top of it. This pipe in increased to six inches, is enclosed in double casing, and projects 12 inches above roof, all as shown in Fig. 1. From observations I should say that it takes about a week of extremely cold weather to close the 6-inch increaser altogether. This photo was taken at the end of January after a month of the most extreme weather experienced here for years, the temperature ranging from zero to 40 deg. below zero F. The time taken to close such a pipe would, I suppose, depend on the humidity of the air in the sewer, and I may say that there was no house-trap on the drain to the house shown in photo. It apparently makes very little difference whether there is a house-trap on the drain or not, as we have had many instances both where the house-trap has been used and where it has been left out and still the pipe freezes at the roof.

Perhaps Mr. Gray or some of your readers have suggestions to make which would overcome this difficulty and it would be a real benefit to the people of this Northern clime if the problem was solved satisfactorily.

Winnipeg, Manitoba. Jas. Smith, Plumbing Inspector.

Pittsford, Vt.—Charles Patch, of Proctor, opened a plumbing establishment here last month.

Meriden, Conn.—The Taylor-Flag Co. has been organized for the purpose of engaging in the plumbing and heating business. The capital is placed at $35,000.

THE METAL MARKET

SMALLER PIG-IRON PRODUCTION.

The production of pig-iron again fell off during the month of May and the total make of pig-iron was slightly less than 1,900,000 tons. This is smaller than any month in the last two years with the exception of December, 1910, and January, 1911. Prices suffered in consequence, and quotations for iron are slightly lower. It is said that some more sales of Southern iron have been made at $10.50. In the New York market the principal transactions are for small lots for immediate consumption. General consumers have little interest in the market. The same condition of affairs prevails in almost all iron markets, although in the West the inquiries are more numerous. Quotations are as follows:

No. 2 Southern foundry, Birmingham	$10.50 to $11.00
No. 1 Northern foundry, New York	15.50 to 15.75
No. 2X Northern foundry, New York	15.25 to 15.50
No. 2 plain, Northern foundry, New York	14.75 to 15.00
No. 2 Northern foundry, Chicago	15.00

CONTINUED APATHY IN OLD IRON.

Holders of scrap are unwilling to part with their material, except at somewhat higher prices than those now prevailing. Consumers will not buy at these figures and in consequence the market is deadlocked. Nominal quotations per gross ton are as follows:

No. 1 yard wrought, long	$11.50 to $12.00
No. 1 yard wrought, short	10.00 to 10.50
Heavy-melting steel scrap	10.50 to 11.00
Machinery cast	11.00 to 11.50
Wrought pipes and tubes	10.00 to 10.50
Malleable castings	10.00 to 10.50
Wrought turnings	6.25 to 6.75
Cast borings	5.25 to 5.75
Stove plate	8.50 to 9.00
Light iron	4.25 to 4.75

A LARGER CONSUMPTION OF COPPER.

The statistics of the copper trade, compiled by the Copper Producers' Association, show that domestic deliveries during May were 64,000,000 lb., compared with 52,000,000 lb. last month and 59,000,000 lb. in the corresponding month last year. Exports were practically the same as in April and showed an increase of 16,000,000 lb. compared with May, 1910. Consumption was within 400,000 lb. of production, but the production showed an increase of 9,000,000 lb. compared with the preceding month and nearly 4,000,000 lb. compared with the corresponding month last year. It is evident that the consumers have purchased freely and are taking deliveries. More than this, they are still interested in the market and the buying continues good. The copper market is in better condition than for a long time. Prices continue unchanged at 12.25 cents for electrolytic and 12.45 for Lake. These prices are for large lots.

RECORD FIGURES FOR PIG TIN.

During the week tin sold in New York at 50 cents per lb. and more. This price was paid for full sized lots of 5 tons for New York delivery and makes a new high record price. In the London market the price also soared to hitherto unknown heights. The tin syndicate has absolute control of the market and are making consumers pay a penalty of approximately 4 cents per lb. for tin for immediate consumption, as tin for future delivery can be had at 45 to 46 cents. Even this price is extremely high. When a market advances with such astonishing rapidity, it indicates the control by a powerful syndicate. In the past the collapse of such markets has always been with marked suddenness, and whether this is the high level or not, it betokens a fall not in the far distant future. The market is now fluctuating wildly, with a difference as high as ½ cent per lb. between sales.

LEAD.

The market continues dull, outside producers quoting lead at 4.37½ cents New York and 4.22½ St. Louis.

SPELTER.

Some large inquiries are noted and the market is slightly higher, being quoted at 5.50 cents New York and 5.25 St. Louis.

THE NEW ENGLAND ASSOCIATION OF PLUMBING INSPECTORS SUCCEEDS THE MASSACHUSETTS ASSOCIATION.

Twenty-six members of the Massachusetts Association of Plumbing Inspectors gathered at the Bay State House in Worcester, Mass., on June 7th, for the 16th annual meeting of the organization. As announced by special telegram in last week's issue, the meeting was one of the most interesting that the organization has ever held and marked an epoch, for before they adjourned the members had voted to admit to their ranks plumbing inspectors from any of the six New England states and, in order that the name might not be misleading, to be known hereafter as the New England Association of Plumbing Inspectors. As the first step in the direction of broadening, the organization elected Reuben S. Bemis, of Providence, R. I., as second vice-president. Other officers elected were as follows:

President, O. J. Cullington, Lawrence, Mass; first vice-president, H. H. Wilcox, Taunton, Mass; secretary, E. G. Bates, Springfield, Mass; treasurer, J. H. Mulloney, Boston; chairman Ways and Means Committee, John F. McCartney, Worcester, Mass; chairman Legislative Committee, Thomas M. Wilson, Boston; chairman Publishing Committee, Thomas M. Wilson, Boston; chairman Committee on Scientific Papers, M. B. Coleman, Newton, Mass. The chairmen were empowered to name members of their respective committees.

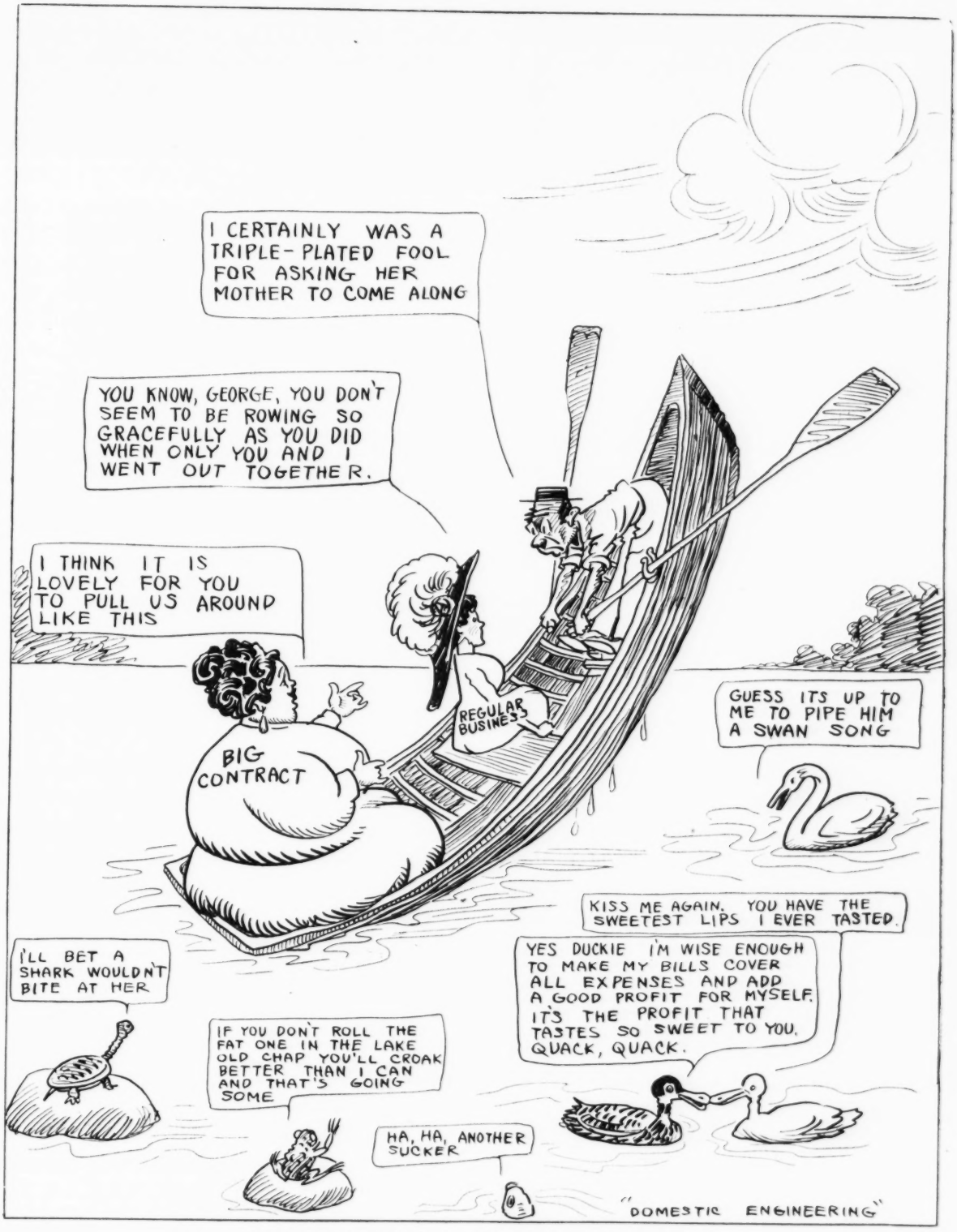
The principal address of the day was made by Inspector Bemis, of Providence, who spoke on the operation of the plumbing inspection department in his city. In that city the plumbing inspection department is a separate department under the control of a supervisor, instead of being under the board of health. Other addresses were made by Andrew J. Burnett, of Melrose, and Thomas M. Wilson, of Boston, both of whom spoke on sanitary and scientific plumbing.

The committee in charge of the meeting was composed of the three Worcester inspectors, John F. McCartney, John F. Hurley and John G. Pattison. Among those present from other cities were:

Frank L. Avery, Holyoke; Ernest G. Bates and Frank W. Tower, Springfield; John F. Bresnahan, Fitchburg; Albert R. Brown, Southbridge; Andrew J. Burnett, Melrose; Morris B. Coleman, Newton; Dennis H. Coleman, John J. Donovan, Robert W. Godfrey, John H. Mulloney, Joseph F. Salter, Patrick T. Slattery, William A. Wheater, Charles A. White and Thomas M. Wilson, Boston; Oswald J. Cullington, Lawrence; Fred W. Herrick, Beverly; Leslie E. Morrison, Medford; William M. Porter, Westfield; Louis H. Richardson, New Bedford; Henry H. Wilcox, Taunton; Frank E. Winslow, Chelsea; Thomas B. Wishart, Watertown.

The next meeting will be held in Boston in September.

"Domestic Engineering" Cartoon on "A Business Overload"—XLII.


I CERTAINLY WAS A TRIPLE-PLATED FOOL FOR ASKING HER MOTHER TO COME ALONG
YOU KNOW, GEORGE, YOU DON'T SEEM TO BE ROWING SO GRACEFULLY AS YOU DID WHEN ONLY YOU AND I WENT OUT TOGETHER.
I THINK IT IS LOVELY FOR YOU TO PULL US AROUND LIKE THIS
REGULAR BUSINESS
BIG CONTRACT
GUESS ITS UP TO ME TO PIPE HIM A SWAN SONG
KISS ME AGAIN. YOU HAVE THE SWEETEST LIPS I EVER TASTED.
YES DUCKIE I'M WISE ENOUGH TO MAKE MY BILLS COVER ALL EXPENSES AND ADD A GOOD PROFIT FOR MYSELF. IT'S THE PROFIT THAT TASTES SO SWEET TO YOU. QUACK, QUACK.
I'LL BET A SHARK WOULDN'T BITE AT HER
IF YOU DON'T ROLL THE FAT ONE IN THE LAKE OLD CHAP YOU'LL CROAK BETTER THAN I CAN AND THAT'S GOING SOME
HA, HA, ANOTHER SUCKER
"DOMESTIC ENGINEERING"

Fanning the Air With the Oars Wont Get Anybody Anywhere.

If you want to possess a special proof of this or any other of our cartoons, let us have your request at once. We have many applications for our cartoons for framing and want to take good care of all demands made.

CRANE CO. SELLS MUNCIE, IND., BRANCH.

Crane Co., Chicago, has sold its branch at Muncie, Ind., to Geo. Keiser & Co., in that city. This branch carried complete lines of plumbing, heating, lighting, engine and mill supplies.

MOVES ITS NEW YORK CITY SHOWROOM.

The Federal Huber Co. has moved its New York City showroom from 244 Fifth Ave. to 33 West 44th St. where the company will have very elaborate quarters when it is fully established in this new home.

RECEIVER'S SALE OF CULLEN STOCK AND FIXTURES.

George K. Miles, receiver for the bankrupt estate of Frank H. Cullen, trading as the Cullen Manufacturiag and Supply Co., 237-239 First Ave., Pittsburgh, Pa., announces that the entire stock of plumbing supplies, store and office fixtures of that estate will be sold at public sale to the highest bidder at 11 a. m., Tuesday, June 20, 1911.

THE NATIONAL DRINKING-CUP CO. INCORPORATED.

The National Drinking-Cup Co. has been organized at Atlanta, Ga., to manufacture a germ-proof drinking-cup. The capital stock of the new corporation is announced to be $200,000 and the officers, all of whom are of Atlanta, are as follows: President, J. G. Sharon; vice-president and general counsel, W. H. Ellis; secretary, Dr. J. H. Crawford; treasurer, H. F. Sharon.

PERSONAL MENTION.

John Dunn, a pioneer master plumber at De Kalb, Ill., was in Chicago this week calling on old and young friends in the trade. He also favored "Domestic Engineering" with a visit. He has just celebrated his fifty-sixth anniversary in the plumbing trade. He looked hale and hearty and appeared able to shoulder a good many more years in the business.

The marriage this month of C. W. Abbott, of Oakland, Cal., to Miss Eva Slavich, was one of the leading social affairs of the season in that city, and was of particular interest to the members of the local plumbing trade, the groom being the manager of the Oakland interests of the R. W. Kinney Co. Abbott is well known in Oakland, being a prominent club man, and Mrs. Abbott is a favorite in the younger set. After the wedding the couple left for Southern California on a short tour.

SUMMER MEETING OF THE AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS.

The Board of Governors of the American Society of Heating and Ventilating Engineers has decided to hold the summer meeting in Chicago on July 6, 7 and 8.

President Patterson of the Illinois Chapter has appointed committees on entertainment and arrangements and on June 7th the latter committee selected the Hotel La Salle as the headquarters for the meeting, on account of its central location, its distinctly modern character and its reasonable rates. Further particulars, together with the program, will be announced as early as possible, the main object of this preliminary notice being to give every one an opportunity to plan to attend the meeting.

The Red Room on the 19th floor of the hotel has been secured for the meetings and it is felt that this will be as cool a meeting place as can be found in the city.

The Committee on Entertainment, Samuel R. Lewis, W. L. Bronaugh, and L. C. Soule, promises in the intervals between the professional sessions diversions of a specially attractive nature.

NEW MEMBERS OF THE AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS.

The following have recently been elected to membership in the American Society of Heating and Ventilating Engineers:

Members.

P. A. Bates, Consulting Engineer, 2 Rector St., New York.

Wm. H Chenoweth, jr., Warren, Webster Co., Monadnock Block, Chicago.

S. F. Gardner, Standard Engineering Co., Metropolitan Bank Bldg., Washington, D. C.

Joseph Graham, Editor "Engineering Review," 239 W. 39th St., New York.

C. T. Hill, General Fire Extinguisher Co., Warren, O.

E. C. Hinkle, President, Atlantic Heating & Engineering Co., Trenton, N. J.

P. A. Hoffman, B. F. Sturtevant Co., 50 Church St., New York.

C. R. Honiball, C. R. Honiball Co., 36 Dale St., Liverpool, Eng.

N. K. Howard, Consulting Engineer with Geo. H. Wentz, Lincoln, Nebr.

W. P. Klobukowski, 71, Jerozolimska, Warsaw, Russ. Poland.

J. I. Lyle, Gen. Mgr., Carrier Air Conditioning Co., 39 Cortlandt St., New York.

F. A. Miller, Supervising Architect's Office, Treasury Department, Washington, D. C.

M. P. Miller, Warren Webster & Co., Camden, N. J.

W. R. Murphy, Gen. Mgr., American Heating & Ventilating Co., Richmond, Va.

O. E. Polglase, Westinghouse, Church, Kerr & Co., 10 Bridge St., New York.

C. L. Reeder, Consulting Engineer, Equitable Bldg., Baltimore, Md.

Arthur Ritter, American Blower Co., 141 Broadway, New York.

H. C. Russell, Supervising Architect's Office, Treasury Department, Washington, D. C.

W. T. Smallman, Treasurer, Isaac Coffin & Co., 52 Sudbury St., Boston.

Robert Thomson, Thomson & Homer, Winnipeg, Man.

C. W. Williams, Williams & Cole, 9 Park St., Boston, Mass.

H. L. Williams, President American Warming & Ventilating Co., 541 Wood St., Pittsburgh.

Associates.

W. G. Culbert, McCrum-Howell Co., Philadelphia, Pa.

Joseph McCusker, 690 Lovejoy St., Portland, Ore.

C. H. Spiehler, Heating Engineer, Dayton Lighting Co., Dayton, O.

E. J. Treat, Autoforce Ventilating System, 59 W. 65th St., New York.

UNION SANITARY MFG. CO'S. EMPLOYEES ENJOY FIRST ANNUAL PICNIC.

On June 10, Noblesville, Ind., had the appearance of a deserted village, when the employees of the Union Sanitary Mfg. Co. and their families, about 750 in force, abandoned their foundry and ovens and retreated to Brown's Grove for their first annual picnic. Old Sol's untiring efforts to make everybody uncomfortable were frustrated with the assistance of the dense grove and refreshing beverages. The morning witnessed the event of the ball game between the enamelers and the molders. The skill of the enamelers would have won the game, had it not been for

Geo. M. Snyder, Traveling Representative, and E. V. Brigham, General Manager, Both of the Union Sanitary Mfg. Co.

the persistence of the molders in batting the ball to unexplored sections of the grove.

The line-up was as follows:

Molders	Enamelers
B. Reynolds, 1b.	L. Coughlin, lf.
A. Cammack, 2b.	H. Taylor, 3b.
A. Riley, rf.	B. Harrison, ss.
C. Crist, p.	H. Miller, 1b.
C. Perry, 3b.	H. Crist, 2b.
H. Darrah, lf.	C. Reveol, rf.
O. Hunnicutt, cf.	F. Small, c.
A. W. Weaver, c.	F. McVey, cf.
B. Bell, ss.	E. Neff, p.

George Wood, of "The Plumbers Trade Journal," was umpire.

The score was: Molders, 19. Enamelers, 18.

After a luncheon under the trees, the crowd assembled to witness the games, consisting of foot-racing, jumping, pole-vaulting and tug-of-war. In the 33 contests, $150 worth of prizes were given away, including prizes for the tallest single lady and the man with the largest family. In the tug-of-war, the artful enamelers were again humbled by the sturdy molders, when the former were dragged down to the river on the end of the rope.

Towards evening, the crowd assembled at the improvised stadium, where Peter Leffert with his voluminous vocabulary distanced his rivals in a three-minute oratorical battle. The affair was concluded by a boxing-match and a country dance, after which the victors and vanquished left for their homes with pleasant memories of the first annual picnic of the Union Sanitary Mfg. Co.

Among the local celebrities present was ex-mayor Geo. M. Snyder, now with the Union Sanitary Mfg. Co. The out-of-town guests included Henry Biedmyer, of the plumbing firm of Biedmyer & Co., Louisville; J. P. Morley and George Wood, of "The Plumbers Trade Journal," and Frank P. Keeney, of "Domestic Engineering."

The affair was ably managed by the veteran of the company, John O. Clarke, assisted by the following commit-

Left to Right: C. H. Ritchie, Purchasing Agent; J. O. Clark, Accountant; R. J. Evans, Assistant Manager; B. A. Ludlum, Shipping Clerk. All of the Union Sanitary Mfg. Co.

tee of arrangements: Peter Leffert, Ed Young, C. O. Hunnicutt, Alf. Johnson, Dora Wiles, Chas. Supple, H. Turner, Bert Ludlum, G. Montgomery, Chas. Dixon, Jim

Some of the Ladies in Attendance.

Geiger, Henry Bockweg, Ed Joseph, Wm. Loehr, H. Underwood, Ed Maley, Joe Cowie, Chas. Ritchie, Rol Evans and Geo. Evans.

THE LARGEST RADIATOR IN THE WORLD.

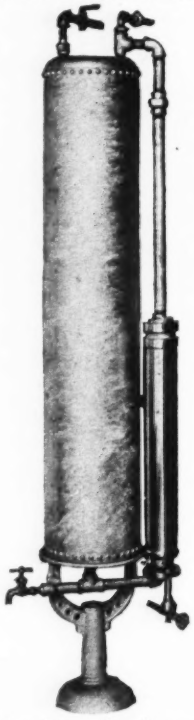
United States Consul General T. St. John Gaffney, of Dresden, Germany, calls attention to a new radiator intended for the motor of an airship of 300 horsepower. It is made entirely of aluminum, is 4 ft. 7 in. high, 4 ft. 7 in. broad, and 8 in. deep. These dimensions are small when it is remembered that this radiator, with an hourly capacity of 6,868 gallons, radiates no less than 288,000 B. t. u. per hour, while 1,695,000 cu. ft. of air pass through it. At an external temperature of 20° C., or 68° F., the maximum internal temperature is 75° C., or 167° F. The weight is trifling, being only 145 lb. empty and 209 lb. when full of water.

NOW THE HARRIS HARDWARE CO.

The J. H. Harris Plumbing and Supply Co., Washington, N. C., has changed its name to the Harris Hardware Co. and increased the capital stock to $75,000.

THE "EUREKA" GAS WATER HEATER.

What is home without a water-heater? The higher the mercury mounts in the tube the greater the demand for the refreshment afforded by a hot bath. But no one wants to add to the heat in the kitchen or bath-room by using a water-heater that requires much time to do its work. When you want hot water, you want it right away quick, especially if there are several members in the family all waiting for their turn in the inviting porcelain pool.



The "Eureka" water-heater will supply 15 gal. of hot water at a cost of one cent, and have it ready while you are preparing for your swim.

In the construction of the "Eureka" heater, the water enters at the top, passes down to the bottom of the heater through the cold water jacket surrounding the heating coils, and then upward through the coils, thus being preheated before it comes into contact with the coils. One burner does all the work, reducing the gas-bill materially.

Another good point in the "Eureka" is the flush-out at the bottom of the heater, through which the sediment-chamber can be thoroughly cleaned out as often as desired. Those who are dependent for household purposes upon a liquid that is by no means "aqua pura," will appreciate this feature. The "Eureka" is made entirely of brass, with coils of copper, and is nickel-plated. This makes it easy to keep clean, as it will not corrode. It is made in a variety of sizes, to suit all conditions, and the manufacturers stand back of it with a garantee of materials and workmanship.

If you are interested, write for the descriptive folder to the Eureka Water Heater Co., 37 W. Lake St., Chicago, and tell them "Domestic Engineering" advised you to keep cool by using lots of hot water.

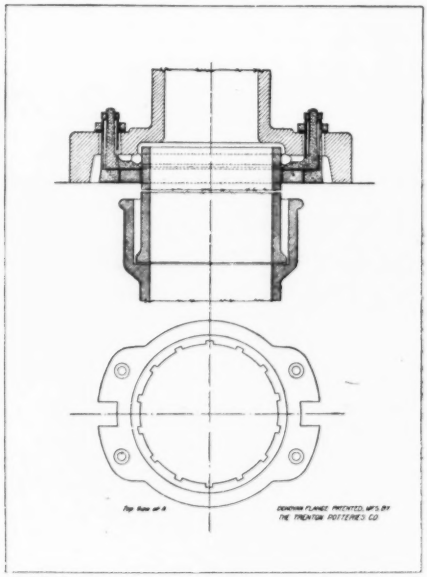
THE DONOVAN FLANGE.

The Trenton Potteries Co., which has recently placed the Donovan floor flange on the market, has received much praise for this closet connection. The company states that in furnishing the Donovan floor flange in connection with its water-closets, it believes it has solved the problem of providing a simple and mechanical means for properly connecting earthenware direct to the drainage system. As this provides a water-sealed joint, the uncertainty attending the setting of water-closets is entirely removed.

In the past plumbers have often wondered whether the packing depended upon to make a tight joint had been sufficiently compressed. This was always a matter of doubt, as there was no means of knowing positively except by an air test. In the Donovan flange the work is separated; one set of nuts secures the fixture rigidly, the other set compresses the packing. As the packing is easily compressed between the brass flange and earthenware and toward the pipe, a very slight tightening of the small nuts is all that is necessary to secure a tight joint.

The Donovan flange is made to connect with lead, standard cast-iron, extra-heavy cast-iron and Durham systems of drainage. For lead pipe a brass ring may be inserted in recess of flange and soldered to lead pipe. The differences in diameter between standard and heavy pipe is provided for by small guides on iron flange, which may be easily broken off when heavy pipe is used. This is shown in illustration.

All plumbers who want to keep abreast of **the latest** sanitary appliances should write for a copy of **booklet**



Sectional and Top View of Donovan Floor Flange.

describing this new flange, which may be obtained from the Trenton Potteries Co., Trenton, N. J., upon application. Tell the company that you read about it in "Domestic Engineering," so it must be good.

EXHIBITS AT THE NATIONAL DISTRICT HEATING ASSOCIATION CONVENTION IN PITTSBURGH, JUNE 6TH, 7TH AND 8TH, 1911.

Owing to delay in the delivery of the photographs, which arrived just as "Domestic Engineering" was going to press last week, we were unable to present an account of the exhibits at the convention of the National District

The Exhibit of the Michigan Pipe Co., Bay City, Mich.

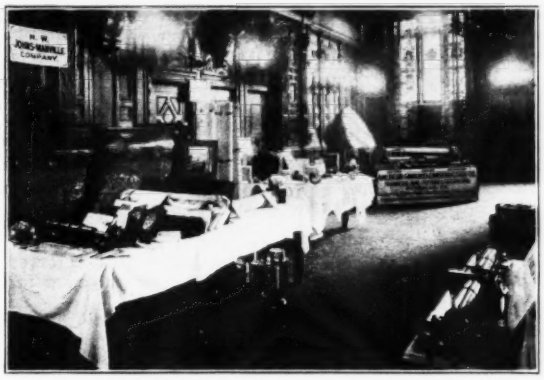
Heating Association in connection with our report of the meeting.

The exhibits in the rear of the convention hall were not numerous, but were very interesting from a scientific point of view.

Considerable literature was given out by the General Electric Co., Schenectady, N. Y., concerning steam and air flow-meters. Several designs of meters were exhibited and during the convention the exhibit always had a number of delegates around it.

A representative of the Wooden Ventilator Co., East Palestine, O., distributed literature describing the products of this concern, which are comparatively new features in the trade.

The American District Steam Co., Lockport, N. Y., presented delegates with handsome catalogs, which might



The Exhibit of the H. W. Johns-Manville Co. and the American Foundry & Construction Co.

be well called "scenes of progressiveness," for they tell of the up-to-date towns in all parts of the country now using steam-heat from one central station. The display of this company was a highly instructive one.

W. H. Pearce & Co., engineers, Chicago, had a working exhibit of pipe construction and conduits. A part of the exhibit was made to show how the "contract" appeared under the surface.

Literature in different forms was presented delegates by representatives of the American Foundry & Construction Co., Pittsburgh. This concern made it clear to all delegates that it furnished complete piping for power plants. The local company is also the licensed agent for the Crescent Central Patented Station Apparatus.

The Michigan Pipe Co., Bay City, Mich., showed samples of its "improved" wood pipe for water-works and central station plants

Representatives of the Central Station Steam Co., Detroit, Mich., distributed Catalog No. 7 at the convention. General equipment in reduced quantities was displayed.

Jenkins Bros., New York and Chicago, featured gate-valves.

The H. W. Johns-Manville Co., Milwaukee, Wis., exhibited conduits for underground piping. This display was the most elaborate at the convention. The actual form of construction of an underground system was shown in detail, special arrangements having been made for this purpose.

The Westinghouse Electric & Manufacturing Co., Pitts-

The Westinghouse Electric & Manufacturing Co's. Exhibit.

burgh, had a very attractive display of electrical appliances, which proved a most interesting feature of the exhibit hall. A host of those things were shown which add pleasure and comfort to home life and which at the same time relieve the housekeeper's labors.

EAST ST. LOUIS, ILL., TO HAVE PUBLIC-COMFORT STATION.

The Retail Merchants' Association recently decided to establish public-comfort stations in several of the retail stores in the business section. It is intended to maintain small apartments supplied with table, chairs, drinking-water and other conveniences. The location of these rest-rooms is to be indicated by the public-comfort station symbol, a green circle enclosing a large red cross, which will be prominently displayed on large white enameled signs near the main entrance door of the stores.

The Attractive and Instructive Exhibit of the American District Steam Co., of Lockport, N. Y., North Tonawanda, N. Y., and Chicago.

NEW ENGLAND NOTES.

Massachusetts.

Ware.—R. G. Harrington has been awarded a contract for plumbing and heating in the residence of Dr. G. A. Cummings on Church street.

Pittsfield.—John H. Retallick, plumber, has moved his place of business from the Gamwell block on Columbus avenue to 28 Dunham St.

Dalton.—The board of education has awarded the contract for installing new sanitary arrangements in the Craneville school building to Ford & Parker, the lowest bidders. The contract calls for the completion of the work before August 19th.

Warren.—Judson W. Maxim has been awarded the plumbing and steam-fitting contract for the Ramsdell block, which is being rebuilt.

Holyoke.—Contracts for the new Joseph Metcalf school building, which is to be built in the Elmwood section, have been awarded by the board of public works of the city. The E. H. Friedrich Co. was awarded the contract for the installation of the plumbing, which includes the setting-up of shower-baths, etc. The bid for this work was $2,950. The heating and ventilating contract has not been placed.

Salisbury Beach.—Fred Tappin and Willian Creeden, of Haverhill, have opened a plumbing establishment here and already have several good contracts in hand.

Gardner.—John R. Carey, whose place of business is in the Ryan block, has the contract to install new plumbing in the residence of Frunk Dunn at North Ashburnham, and new plumbing in the residence of Arthur Wellington at East Rindge, N. H.

Clinton.—O'Tolle Bros. are doing the plumbing and heating at the new rectory of the Church of Our Lady of the Rosary. The building is rapidly nearing completion.

Winchester.—The contract for plumbing in the new Winchester Laundry building has been awarded to the Edwards & Poor Co.

Leominster.—The school committee has received bids for plumbing, heating and ventilating the Priest school addition. For plumbing the bid of J. B. Farnsworth, totalling $1,650, has been accepted, and for heating and ventilating that of the Jennison Plumbing Co., $2,584. Other bidders and their figures follow: Plumbing: Crapin & Wilkins Co., $1,660; Jennison Plumbing Co., $1,739; Lyon Co., $1,755. Heating and ventilating: Lyon Co., $2,600; Crapin & Wilkins Co., $2,875; J. B. Farnsworth, $3,000; O'Toole Bros., $3,274.

Plymouth.—Michael D. Welch has resigned his position as foreman of the heating and plumbing department of the John E. Jordan Hardware Co., and has gone into business on his own account.

New Bedford.—Bids for repairs and alterations to the heating, ventilating and sanitary apparatus at the Acushnet avenue school building have been received by the school board. There were only two bidders, C. H. Sanborn, of Boston, $15,350, and Isaac Coffin Co., Boston, $14,987. The first named agrees to have the work done September 1st and the latter August 20th. As yet the contract has not been let, as the amount available for the work is only $10,000. An effort is being made to secure an additional appropriation from the city.

Connecticut.

New Haven.—The master plumbers have petitioned the board of health for the appointment of an examining board of three with power to issue plumbing licenses. The board is not exactly pleased with the position of the master plumbers, and in a statement issued at the close of the session at which the petition was received a member of the body gave out the following statement:

"We have many times offered to meet with the plumbers' representatives and co-operate with them in every way we could to remedy any defects, imaginary or real, that they may feel exist in the present plumbing ordinances and they have alyays ignored our invitations. We believe that to grant their present petition is unwise, unnecessary and unjust."

New Haven.—City Clerk Pallman has been notified that a lien has been placed on the new public library building by the firm of Menzies & Menzies, who seek to collect an alleged unpaid plumbing bill. The plaintiffs claim that $700 is due them, alleging that they were employed by the New York Blower Co. to install certain fixtures in the building and that they have never been paid. The New York Blower Co. had a contract from the city for a part of the work.

Waterbury.—The Barlow Bros. Co. has been awarded the contract for the plumbing and heating for the three new houses which are being erected on Elmwood avenue for James A. Peasley. The same concern also has a contract for plumbing and heating in connection with alterations which are being made at the East Main street engine-house.

Waterbury.—J. Devine & Sons have the contract for the plumbing and heating in the new bungalow to be erected at the corner of Middlesex street and Essex avenue for W. F. Weymer.

Waterbury.—Contracts for plumbing, heating and sprinkler system for the new factory of R. N. Bassett in Derby, Conn., have been placed with M. J. Daly & Sons, Inc.

Hartford.—Joseph Hultberg, formerly a local plumber, has been graduated recently from Augustana College Theological Seminary at Rock Island, Ill., and is soon to be ordained into the Swedish Lutheran ministry.

Norwalk.—Jones & Hotchkiss Co. are doing the plumbing and heating in the new residence which is being erected for Seymour Curtis in South Norwalk.

New Hampshire.

Portsmouth.—Formal protest against the plumbing ordinances of the city has been made by a committee composed of journeymen and master plumbers. They appeared before the city council and protested that the original specifications for plumbing are often changed by virtue of "special permits" and that plumbers who are "wise" to the game are enabled to put in lower bids than those who are not. The masters and journeymen have agreed to submit written specifications of their alleged grievances. The master plumbers' committee is composed of J. W. Barrett, John G. Sweetser and Charles Brewster.

Vermont.

Winooski.—J. F. Goodsell has a large piping contract at the Richmond condensed milk factory at Richmond, and has gone there with a crew of men. The work will take at least a month.

Rhode Island.

Pawtucket.—After being out just a month the Pawtucket plumbers returned to work on June 1st. They asked an increase from $3.50 to $4 a day, but settled on $3.75. The agreement runs until May 1st of next year and affects about 100 plumbers.

OHIO ITEMS.

Portsmouth, O.—Plans are being prepared by experts for a complete new water-works system, which is estimated to cost about $300,000.

Ironton, O.—K. Burgess, of Columbus, O., has prepared plans for drilling a test well to supplement the water-works system at that place.

Columbus, O.—A special meeting of the city council has been called to consider the matter of repealing the new housing code, adopted several months ago. The matter has been referred to the committee of the whole of the council. Friends of the code are making a strenuous effort to save it, and to that end have prepared a number of amendments to the code, which it is hoped will do away with all opposition.

Akron, O.—The announcement is made that the Akron Water Works Co. will complete the installation of the 2,000,000-gal. pump for the city water-works department, giving an adequate supply of water.